



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/511,906	10/20/2004	Motohide Murayama	260429US3PCT	4215
22850 7590 08/08/2007 OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER RODRIGUEZ, WILLIAM H	
			ART UNIT 3746	PAPER NUMBER
			NOTIFICATION DATE 08/08/2007	DELIVERY MODE ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com  
oblonpat@oblon.com  
jgardner@oblon.com

## Office Action Summary

Application No.

10/511,906

Applicant(s)

MURAYAMA ET AL.

Examiner

William H. Rodriguez/

Art Unit

3746

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 22 June 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-3,5-16 and 18-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,5-9,12-16,18-21,24 and 25 is/are rejected.
- 7) ☒ Claim(s) 3,10,11,22 and 23 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

This office action is in response to the amendment and remarks filed 6/22/07. Since the examiner has applied new grounds of rejection, this office action is being made non-final to afford the applicant the opportunity to respond to the new grounds of rejection.

#### ***Response to Arguments***

1. Applicant's arguments with respect to claims 1, 5, 6, 14, 18 and 19 have been considered but are moot in view of the new ground(s) of rejection.
2. The indicated allowability of claims 4-6, 18 and 19 is withdrawn in view of the newly discovered reference(s) to Nordeen et al. (US 7,047,724); Pinard et al. (US 7,055,308); Hagen (US 3,877,219); Baycura (US 4,175,380); and Schick et al. (US 7,150,143). See rejections below.

#### ***Claim Objections***

3. Claim 14 is objected to because of the following informalities:

In claim 14 line 3, the recitation "tabular" is presumed to be --tubular-- for proper clarity.

Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Art Unit: 3746

Claim 5 recites the limitation “first and second turbines disposed on a common shaft in opposition to each other”. It is unclear if the recitation “opposition to each other” refers to the turbines rotating in opposite directions to each other or that the turbines are located at opposite ends of the common shaft—opposite with respect to what (rotation, location on the shaft)? Appropriate correction is required.

### *Claim Rejections - 35 USC § 102*

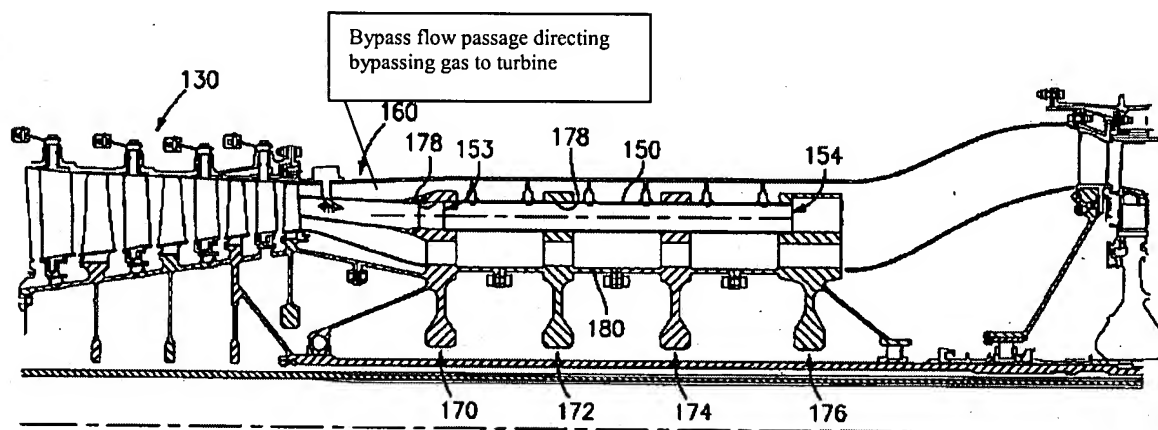
6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1, 2, 5, 12-16, 18, 24 and 25 are rejected under 35 U.S.C. 102(e) as being anticipated by Nordeen et al. (US 7,047,724).



**FIG. 8**

Nordeen (particularly Figures 5 and 8) teaches a pulse detonation engine comprising: a gas supply section (compressed air from compressor 130), a fuel supply section 190, a detonation generator section including a detonation tube 150, an igniter 32 for igniting the mixture of gas and fuel in the detonation tube, a turbine section 136 driven by impact energies of detonations, the detonation generator section including a shock alleviating section 134, said turbine section including a first turbine (high pressure turbine) and a second turbine (a low pressure turbine) mounted on a common shaft, said common shaft being rotated by motive power converted from drive force generated by the turbine, and a bypass flow passage for bypassing a portion of said gas to the turbine (cl. 3 ll. 49-52), wherein said turbine rotation can be used to generate electric power to drive accessory equipment of said gas turbine.

With regards to the method claims, since Nordeen has the same structure as claimed, it is inherent that Nordeen's device would be able to perform the recited method steps.

8. Claims 1 and 14 are rejected under 35 U.S.C. 102(e) as being anticipated by Pinard et al. (US 7,055,308).

Pinard (particularly Figures 1 and 11) teaches a pulse detonation engine comprising: a gas supply section (compressed air from compressor 190), a fuel supply section (not shown but inherent), a detonation generator section including a detonation tube 120, an igniter (not shown but inherent) for igniting the mixture of gas and fuel in the detonation tube, a turbine section 140 driven by impact energies of detonations, and a bypass flow passage for bypassing a portion of said gas to the turbine.

With regards to the method claims, since Pinard has the same structure as claimed, it is inherent that Pinard's device would be able to perform the recited method steps.

9. Claims 5 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Hagen (US 3,877,219).

Hagen (particularly Figures 2, 5 and 6) teaches a pulse detonation engine comprising: a gas supply section (compressed air supplied from compressor), a fuel supply section 6, a detonation generator section including a detonation tube 3, an igniter 7 for igniting the mixture of gas and fuel in the detonation tube, a turbine section driven by impact energies of detonations, said turbine section including a first turbine 10 and a second turbine (cl. 6 ll. 20-21) mounted on a common shaft.

With regards to the method claims, since Hagen has the same structure as claimed, it is inherent that Hagen's device would be able to perform the recited method steps.

10. Claims 5 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Baycura (US 4,175,380).

Baycura (particularly Figure 1) teaches a pulse detonation engine comprising: a gas supply section (1, 2), a fuel supply section (inherent but not shown), a detonation generator section including a detonation tube 7, an igniter for igniting the mixture of gas and fuel in the detonation tube, a turbine section driven by impact energies of detonations, said turbine section including a first turbine 11 and a second turbine 12 mounted on a common shaft.

Art Unit: 3746

With regards to the method claims, since Baycura has the same structure as claimed, it is inherent that Baycura's device would be able to perform the recited method steps.

11. Claims 6-9 and 19-21 are rejected under 35 U.S.C. 102(e) as being anticipated by Schick et al. (US 7,150,143).

Schick (particularly Figures 1, 2) teaches a pulse detonation engine comprising: a gas supply section 40, a fuel supply section for supplying a fuel, a detonation generator section including a detonation tube 10, an igniter for igniting the mixture of gas and fuel in the detonation tube, a turbine section 30 driven by impact energies of detonations, a reformer 60 configured to reform a first fuel into a second fuel (cl. 4 ll. 6-7 and ll. 9-10), wherein said second fuel is the fuel supplied to the detonation tube, wherein said reformatted fuel comprises hydrogen, wherein said reformer uses steam for achieving reforming, .

With regards to the method claims, since Schick has the same structure as claimed, it is inherent that Schick's device would be able to perform the recited method steps.

***Allowable Subject Matter***

12. Claims 3, 10, 11, 22 and 23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Art Unit: 3746

***Contact information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William H. Rodríguez whose telephone number is 571-272-4831. The examiner can normally be reached on Monday-Friday 7:30 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anthony Stashick can be reached on 571-272-4561. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/William H. Rodríguez/  
Primary Examiner  
Art Unit 3746

8/3/07